

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strike through~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

1. (currently amended) A model optimization apparatus, comprising:
a detection unit detecting one or more redundant shapes from a plurality of shapes forming a three-dimensional model of an object by comparing shape coordinates, and generating a list of shapes to be deleted and a list of shapes to be amended among the one or more redundant shapes responsive to the coordinate based comparison;
a deletion unit deleting shape information of shapes in the list of the shapes to be deleted, and amending shape information of shapes in the list of the shapes to be amended;
and
a construction unit reconstructing a three-dimensional model of the object according to remaining shape information including the amended shape information and shape information of shapes other than the one or more redundant shapes.

2. (currently amended) The apparatus according to claim 1, wherein:
said detection unit detects an unnecessary shape not contributing to~~for~~ an outline of the three-dimensional model from the plurality of shapes; and
said deletion unit deletes the shape information about the unnecessary shape.

3. (original) The apparatus according to claim 2, wherein: said detection unit detects two shapes having same outline information and offsetting each other; and said deletion unit deletes the two shapes.

4. (original) The apparatus according to claim 2, wherein:
said detection unit detects two shapes having different outline information and offsetting each other; and
said deletion unit deletes the two shapes.

5. (previously presented) The apparatus according to claim 1, wherein:
said detection unit detects two or more shapes which can be represented by one shape from the plurality of shapes; and

said deletion unit integrates shape information of the two or more shapes into shape information of the one shapes.

6. (original) The apparatus according to claim 5, wherein:
said detection unit detects two shapes having same sectional shape information; and
said deletion unit deletes shape information of one of the two shapes, amends shape information of the other shape, and integrates shape information of the two shapes into shape information of one shape.

7. (original) The apparatus according to claim 5, wherein: said detection unit detects two shapes having same height information; and
said deletion unit deletes shape information of one of the two shapes, amends shape information of the other shape, and integrates shape information of the two shapes into shape information of one shape.

8. (previously presented) The apparatus according to claim 5, wherein:
said detection unit detects two or more shapes having a same arrangement plane information and same height information; and
said deletion unit amends shape information of one of the two or more shapes, deletes shape information of other shapes, and integrates shape information of the two or more shapes into shape information of one shape.

9. (currently amended) The apparatus according to claim 5, wherein: said detection unit detects two or more shapes defined as pattern attributes shapes; and
said deletion unit amends shape information of one of the two or more shapes, deletes shape information of other shapes, and integrates shape information of the two or more shapes into shape information of one shape.

10. (previously presented) The apparatus according to claim 1, wherein:
said detection unit comprises:
a deletion target storage unit storing the list of the shapes to be deleted; and

an amendment target storage unit storing the list of the shapes to be amended.

11. (original) The apparatus according to claim 10, wherein
said deletion unit amends the shape information of the shapes to be amended according to at least one of vertex coordinate information and height information included in deleted shape information.

12. (currently amended) The apparatus according to claim 1, wherein
said construction unit comprises a unit for amending arrangement reference information, ~~as necessary~~, included in the remaining shape information, and reconstructs the three-dimensional model according to the amended arrangement reference information.

13. (original) The apparatus according to claim 1, wherein
said construction unit comprises a unit for generating a pseudo shape corresponding to arrangement reference information included in the remaining shape information, and reconstructs the three-dimensional model using the pseudo shape without amending the arrangement reference information.

14. (currently amended) A computer-readable storage medium storing a program used to direct a computer to perform:
detecting one or more redundant shapes from a plurality of shapes forming a three-dimensional model of an object by comparing shape coordinates, and generating a list of shapes to be deleted and a list of shapes to be amended among the one or more redundant shapes responsive to the coordinate based comparison;

deleting shape information of shapes in the list of the shapes to be deleted, and amending shape information of shapes in the list of the shapes to be amended; and

reconstructing a three-dimensional model of the object according to remaining shape information including the amended shape information and shape information of shapes other than the one or more redundant shapes.

15. (currently amended) A method of optimizing a model, comprising:
automatically detecting one or more redundant shapes from a plurality of shapes forming a three-dimensional model of an object by comparing shape coordinates, and generating a list of

shapes to be deleted and a list of shapes to be amended among the one or more redundant shapes responsive to the coordinate based comparison;

automatically deleting shape information of shapes in the list of the shapes to be deleted, and amending shape information of shapes in the list of the shapes to be amended; and

automatically reconstructing a three-dimensional model of the object according to remaining shape information including the amended shape information and shape information of shapes other than the one or more redundant shapes.

16. (currently amended) A model optimization apparatus, comprising:

detection means for detecting one or more redundant shapes from a plurality of shapes forming a three-dimensional model of an object by comparing shape coordinates, and generating a list of shapes to be deleted and a list of shapes to be amended among the one or more redundant shapes responsive to the coordinate based comparison;

deletion means for deleting shape information of shapes in the list of the shapes to be deleted, and amending shape information of shapes in the list of the shapes to be amended; and

construction means for reconstructing a three-dimensional model of the object according to remaining shape information including the amended shape information and shape information of shapes other than the one or more redundant shapes.